



SEQUENCE LISTING

<110> Cambridge Antibody Technology  
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Bonert, Timothy

<120> Methods for Producing Members of Specific Binding Pairs

<130> 13839-00013

<140> US 09/726,219

<141> 2000-11-28

<150> GB 9015198.6

<151> 1990-07-10

<150> GB 9022845.3

<151> 1990-10-19

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<151> 1990-10-19

<150> GB 9024503.6

<151> 1990-11-12

<150> GB 9104744.9

<151> 1991-03-06

<150> GB 9110549.4

<151> 1991-05-15

<150> PCT/GB91/01134

<151> 1991-07-10

<150> US 07/971,857

<151> 1993-01-08

<150> US 08/484,893

<151> 1995-06-07

<160> 272

<170> PatentIn version 3.1

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<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 104  
gaaattgtgc tgactcagtc tcc

23

<210> 105  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 105



acgttttgatt tccaccttgg tccc 24

<210> 106  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 106  
acgtttgatc tccagcttgg tccc 24

<210> 107  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 107  
acgtttgata tccactttgg tccc 24

<210> 108  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 108  
acgtttgatc tccaccttgg tccc 24

<210> 109  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 109  
acgtttaatc tccagtcgtg tccc 24

<210> 110  
<211> 48  
<212> DNA  
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 110

gagtcattct cgacttgcg cgcacgttt gatttccacc ttggtccc

48

<210> 111

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 111

gagtcattct cgacttgcg cgcacgttt gatctccagc ttggtccc

48

<210> 112

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 112

gagtcattct cgacttgcg cgcacgttt gatatccact ttggtccc

48

<210> 113

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 113

gagtcattct cgacttgcg cgcacgttt gatctccacc ttggtccc

48

<210> 114

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 114

gagtcattct cgacttgcg cgcacgttt aatctccagt cgtgtccc

48

<210> 115

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 115

agactctccc ctgttgaagc tctt

24

<210> 116

<211> 54

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 116

gagtcattct cgacttgccg ccgcttatta agactctccc ctgttgaagc tctt

54

<210> 117

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 117

gagtcattct cgacttgccg ccgcagactc tcccctgttg aagctctt

48

<210> 118

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 118

cagtctgtdt tgacgcagcc gcc

23

<210> 119

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 119

cagtctgccc tgactcagcc tgc

23

<210> 120  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 120  
tcctatgtgc tgactcagcc acc

23

<210> 121  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 121  
tcttctgagc tgactcagga ccc

23

<210> 122  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 122  
cacgttatac tgactcaacc gcc

23

<210> 123  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 123  
caggctgtgc tcactcagcc gtc

23

<210> 124  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 124

aattttatgc tgactcagcc cca

23

<210> 125  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 125  
acctaggacg gtgaccttgg tccc

24

<210> 126  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 126  
acctaggacg gtcagcttgg tccc

24

<210> 127  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 127  
acctaaaacg gtgagctggg tccc

24

<210> 128  
<211> 48  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 128  
gagtcattct cgacttgcgg ccgcacctag gacggtgacc ttggtccc

48

<210> 129  
<211> 48  
<212> DNA  
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 129

gagtcattct cgacttgcg cgcacctag gacggtcagc ttggtccc

48

<210> 130

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 130

gagtcattct cgacttgcg cgcacytaa aacggtgagc tgggtccc

48

<210> 131

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 131

tgaagattct gtaggggcca ctgtctt

27

<210> 132

<211> 57

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 132

gagtcattct cgacttgcg ccgcttatta tgaagattct gtaggggcca ctgtctt

57

<210> 133

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 133

gagtcattct cgacttgcg ccgctgcaga ttctgtaggg gctgtctt

48

<210> 134

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 134

gcaccctggc caccgtctcc tcaggtgg

28

<210> 135

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 135

ggacaatggc caccgtctct tcaggtgg

28

<210> 136

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 136

gaaccctggc caccgtctcc tcaggtgg

28

<210> 137

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 137

ggaccacggc caccgtctcc tcaggtgc

28

<210> 138

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 138

aagcccagca acaccaaggt ggac

24

<210> 139  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 139  
ggagactggg tcatctggat gtccgatccg cc 32

<210> 140  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 140  
ggagactgag tcatcacaac atccgatccg cc 32

<210> 141  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 141  
ggagactgcg tcaacacaat ttccgatccg cc 32

<210> 142  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 142  
ggagactggg tcatcacgat gtccgatccg cc 32

<210> 143  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 143



ggagactgcg tgagtgtcgt ttccgatccg cc

32

<210> 144  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 144  
ggagactgag tcagcacaat ttccgatccg cc

32

<210> 145  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 145  
ggagactggg tcatctggat gtcggccatc gctgg

35

<210> 146  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 146  
ggagactgcg tcatcacaac atcggccatc gctgg

35

<210> 147  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 147  
ggagactgcg tcaacacaat ttcggccatc gctgg

35

<210> 148  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 148

ggagactggg tcatcacgat gtcggccatc gctgg

35

<210> 149

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 149

ggagactgcg tgagtgtcgt ttcggccatc gctgg

35

<210> 150

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 150

ggagactgcg tcagcacaat ttcggccatc gctgg

35

<210> 151

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 151

ggcggctgcg tcaacacaga ctgcatccg ccaccgccag ag

42

<210> 152

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 152

gcaggctgag tcagagcaga ctgcatccg ccaccgccag ag

42

<210> 153

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 153

ggtggctgag tcagcacata ggacgatccg ccaccgccag ag

42

<210> 154

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 154

gggtcctgag tcagctcaga agacgatccg ccaccgccag ag

42

<210> 155

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 155

ggcggttgag tcagtataac gtgcgatccg ccaccgccag ag

42

<210> 156

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 156

gacggctgag tcagcacaga ctgcgatccg ccaccgccag ag

42

<210> 157

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 157

tggggctgag tcagcataaa attcgatccg ccaccgccag ag

42

<210> 158  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 158  
ggcggctgcg tcaacacaga ctgggccatc gctggttggg ca

42

<210> 159  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 159  
gcaggctgag tcagagcaga ctgggccatc gctggttggg ca

42

<210> 160  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 160  
ggtggctgag tcagcacata ggaggccatc gctggttggg ca

42

<210> 161  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 161  
gggtcctgag tcagctcaga agaggccatc gctggttggg ca

42

<210> 162  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR Primer

<400> 162

ggcggttgag tcagtataac gtgggccatc gctggttggg ca

42

<210> 163

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 163

gacggctgag tcagcacaga ctgggccatc gctggttggg ca

42

<210> 164

<211> 42

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR Primer

<400> 164

tggggctgag tcagcataaa attggccatc gctggttggg ca

42

<210> 165

<211> 118

<212> PRT

<213> Homo sapiens

<400> 165

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Gly Ile Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met  
35 40 45

Gly Trp Ile Ser Ala Tyr Asn Gly Asn Thr Lys Tyr Ala Gln Lys Ile  
50 55 60

Gln Gly Arg Val Thr Met Ile Thr Asp Thr Ser Thr Ser Thr Ala Tyr  
65 70 75 80

Met Glu Leu Arg Ser Leu Arg Ser Asp Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Val Arg Leu Leu Pro Lys Arg Thr Ala Thr Leu His Tyr Tyr Ile Asp  
100 105 110

Val Trp Gly Lys Gly Thr  
115

<210> 166  
<211> 65  
<212> PRT  
<213> Homo sapiens

<400> 166

Asn Asn Tyr Val Ser Trp Tyr Gln His Leu Pro Gly Thr Ala Pro Asn  
1 5 10 15

Leu Leu Ile Tyr Asp Asn Asn Lys Arg Pro Ser Gly Ile Pro Asp Arg  
20 25 30

Phe Ser Gly Ser Lys Ser Gly Thr Ser Ala Thr Leu Gly Ile Thr Gly  
35 40 45

Leu Gln Thr Gly Asp Glu Ala Asp Tyr Tyr Cys Gly Ile Trp Asp Gly  
50 55 60

Arg  
65

<210> 167  
<211> 115  
<212> PRT  
<213> Homo sapiens

<400> 167

Gln Val Gln Leu Val Gln Ser Gly Gly Gly Val Val Gln Pro Gly Arg  
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr  
20 25 30

Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val  
35 40 45

Ala Val Ile Ser Tyr Asp Gly Ser Asn Lys Tyr Tyr Ala Asp Ser Val  
50 55 60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr  
65 70 75 80

Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys  
85 90 95

Ala Lys Thr Gly Tyr Ser Ser Gly Trp Gly Tyr Phe Asp Tyr Trp Gly  
100 105 110

Gln Gly Thr  
115

<210> 168  
<211> 101  
<212> PRT  
<213> Homo sapiens

<400> 168

Ser Ser Glu Leu Thr Gln Asp Pro Ala Val Ser Val Ala Leu Gly Gln  
1 5 10 15

Thr Val Arg Ile Thr Cys Gln Gly Asp Ser Leu Arg Ser Tyr Tyr Ala  
20 25 30

Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Val Leu Val Ile Tyr  
35 40 45

Gly Lys Asn Asn Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser  
50 55 60

Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly Ala Gln Ala Glu  
65 70 75 80

Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Arg Asp Ser Ser Gly Asn His  
85 90 95

Val Val Phe Gly Gly  
100

<210> 169  
<211> 100  
<212> PRT  
<213> Homo sapiens

<400> 169

Ser Leu Thr Cys Ser Val Ser Gly Asp Ser Ile Ser Ser Gly Gly Tyr  
1 5 10 15

Ser Trp Ile Arg Gln Pro Ser Gly Lys Gly Ile Glu Trp Ile Gly Ser  
20 25 30

Val His His Ser Gly Pro Thr Tyr Tyr Asn Pro Ser Leu Lys Ser Arg  
35 40 45

Val Thr Met Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu Lys Ile  
50 55 60

Lys Cys Ser Val Thr Ala Ala Asp Thr Ala Met Tyr Phe Cys Ala Arg  
65 70 75 80

Glu Gly Gly Ser Thr Trp Arg Ser Leu Tyr Lys His Tyr Tyr Met Asp  
85 90 95

Val Trp Gly Lys  
100

<210> 170

<211> 111

<212> PRT

<213> Homo sapiens

<400> 170

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu  
1 5 10 15

Thr Leu Ser Leu Val Cys Thr Val Ser Gly Gly Ser Leu Ser Phe Ser  
20 25 30

Tyr Trp Gly Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Ser His Arg Gly Thr Asp Tyr Asn Ser Ser Leu Gln Ser  
50 55 60

Arg Val Thr Ile Ser Ala Asp Thr Ser Lys Asn Gln Phe Ser Leu Lys  
65 70 75 80



Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala Arg  
85 90 95

Ser Phe Ser Asn Ser Phe Phe Phe Gly Tyr Trp Gly Gln Gly Thr  
100 105 110

<210> 171  
<211> 111  
<212> PRT  
<213> Homo sapiens

<400> 171

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Gln  
1 5 10 15

Ser Leu Met Ile Ser Cys Gln Gly Ser Gly Tyr Ser Phe Ser Asn Tyr  
20 25 30

Trp Ile Gly Trp Val Arg Gln Met Pro Gly Lys Gly Leu Glu Trp Met  
35 40 45

Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser Pro Ser Phe  
50 55 60

Gln Gly Gln Val Thr Ile Ser Ala Asp Lys Ser Ile Ser Thr Ala Tyr  
65 70 75 80

Leu His Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Leu Tyr Tyr Cys  
85 90 95

Ala Arg Leu Val Gly Gly Thr Pro Ala Tyr Trp Gly Gln Gly Thr  
100 105 110

<210> 172  
<211> 88  
<212> PRT  
<213> Homo sapiens

<400> 172

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Gln  
1 5 10 15

Ser Leu Arg Ile Ser Cys Lys Gly Ala Gly Tyr Ser Phe Ser Thr Tyr  
20 25 30

Trp Ile Gly Trp Val Arg Gln Met Pro Gly Lys Gly Leu Glu Trp Met  
35 40 45

Gly Ile Ile Tyr Pro Asp Asp Ser Asp Thr Arg Tyr Ser Pro Ser Phe  
50 55 60

Glu Gly Gln Val Thr Ile Ser Val Asp Lys Ser Ile Thr Thr Ala Tyr  
65 70 75 80

Leu Trp Trp Ser Ser Leu Lys Ala  
85

<210> 173  
<211> 102  
<212> PRT  
<213> Homo sapiens

<400> 173

Glu Ile Val Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly  
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Asn Tyr  
20 25 30

Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile  
35 40 45

Tyr Ala Ala Ser Thr Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly  
50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Asn Ser Leu Gln Pro  
65 70 75 80

Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Thr Ile Ile Ser Phe Pro  
85 90 95

Leu Thr Phe Gly Gly Gly  
100

<210> 174  
<211> 102  
<212> PRT  
<213> Homo sapiens

<400> 174

Ser Ser Glu Leu Thr Gln Asp Pro Ala Val Ser Val Ala Phe Gly Gln  
1 5 10 15

Thr Val Arg Ile Thr Cys Gln Gly Asp Ser Leu Arg Ser Ser Tyr Ala  
20 25 30

Ser Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Leu Leu Val Ile Tyr  
35 40 45

Gly Glu Asn Ser Arg Pro Ser Gly Ile Pro Asp Arg Phe Ser Gly Ser  
50 55 60

Ser Ser Gly Asn Thr Ala Ser Leu Thr Ile Thr Gly Ala Gln Ala Glu  
65 70 75 80

Asp Glu Ala Asp Tyr Tyr Cys Asn Ser Arg Asp Ser Arg Gly Thr His  
85 90 95

Leu Glu Val Phe Gly Gly  
100

<210> 175

<211> 103

<212> PRT

<213> Homo sapiens

<400> 175

His Val Ile Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Pro Gly Gln  
1 5 10 15

Ser Ile Thr Ile Ser Cys Thr Gly Ser Ser Arg Asp Val Gly Gly Tyr  
20 25 30

Asn Tyr Val Ser Trp Tyr Gln His His Pro Gly Lys Ala Pro Lys Leu  
35 40 45

Leu Ile Ser Glu Val Thr Asn Arg Pro Ser Gly Val Ser Asn Arg Phe  
50 55 60

Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Gly Leu  
65 70 75 80

Gln Ala Glu Asp Glu Ala Asp Tyr Phe Cys Ala Ser Tyr Thr Ser Ser  
85 90 95

Lys Thr Tyr Val Phe Gly Gly  
100

<210> 176  
<211> 94  
<212> PRT  
<213> Homo sapiens

<400> 176

Gln Ser Ala Leu Thr Gln Pro Ala Ser Val Ser Gly Ser Pro Gly Gln  
1 5 10 15

Ser Ile Thr Ile Ser Cys Ser Gly Ser Ser Ser Asp Ile Gly Arg Tyr  
20 25 30

Asp Tyr Val Ser Trp Tyr Gln His Tyr Pro Asp Lys Ala Pro Lys Leu  
35 40 45

Leu Ile Tyr Glu Val Val His Arg Pro Ser Gly Ile Ser His Arg Phe  
50 55 60

Ser Ala Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile Ser Glu Leu  
65 70 75 80

Gln Pro Gly Asp Glu Ala Asp Tyr Tyr Cys Ala Ser Tyr Thr  
85 90

<210> 177  
<211> 69  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> oligonucleotide for mutagenesis

<400> 177  
acaactttca acagttgagg agacggtgac cgtaagcttc tgcagttgga cctgagcgga 60  
gtgagaata 69

<210> 178  
<211> 51  
<212> DNA

<213> Artificial Sequence

<220>

<223> oligonucleotide for mutagenesis

<400> 178

acaactttca acagtttccc gtttgatctc gagctcctgc agttggacct g

51

<210> 179

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> sequencing primer

<400> 179

gtcgtctttc cagacgtag t

21

<210> 180

<211> 26

<212> DNA

<213> Bacteriophage fd

<400> 180

tctcactccg ctgaaactgt tgaaag

26

<210> 181

<211> 62

<212> DNA

<213> Artificial Sequence

<220>

<223> engineered insertion site for VH

<400> 181

tctcactccg ctcaggtcca actgcagaag cttacgggtca ccgtctcctc aactgttgaa

60

ag

62

<210> 182

<211> 59

<212> DNA

<213> Artificial Sequence

<220>

<223> engineered insertion site for Fv

<400> 182

tctcactccg ctcaggtcca actgcaggag ctcgagatca aacgggaaac tggtgaaag

59

<210> 183

<211> 272  
<212> PRT  
<213> Artificial Sequence

<220>

<223> scFv of genetically engineered anti-hen egg-white lysozyme (HEL)  
monoclonal antibody D1.3

<400> 183

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala  
1 5 10 15

Ala Gln Pro Ala Met Ala Gln Val Gln Leu Gln Glu Ser Gly Pro Gly  
20 25 30

Leu Val Ala Pro Ser Gln Ser Leu Ser Ile Thr Cys Thr Val Ser Gly  
35 40 45

Phe Ser Leu Thr Gly Tyr Gly Val Asn Trp Val Arg Gln Pro Pro Gly  
50 55 60

Lys Gly Leu Glu Trp Leu Gly Met Ile Trp Gly Asp Gly Asn Thr Asp  
65 70 75 80

Tyr Asn Ser Ala Leu Lys Ser Arg Leu Ser Ile Ser Lys Asp Asn Ser  
85 90 95

Lys Ser Gln Val Phe Leu Lys Met Asn Ser Leu His Thr Asp Asp Thr  
100 105 110

Ala Arg Tyr Tyr Cys Ala Arg Glu Arg Asp Tyr Arg Leu Asp Tyr Trp  
115 120 125

Gly Gln Gly Thr Thr Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly  
130 135 140

Gly Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln Ser  
145 150 155 160

Pro Ala Ser Leu Ser Ala Ser Val Gly Glu Thr Val Thr Ile Thr Cys  
165 170 175

Arg Ala Ser Gly Asn Ile His Asn Tyr Leu Ala Trp Tyr Gln Gln Lys  
180 185 190

Gln Gly Lys Ser Pro Gln Leu Leu Val Tyr Tyr Thr Thr Thr Leu Ala  
 195 200 205

Asp Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Gln Tyr  
 210 215 220

Ser Leu Lys Ile Asn Ser Leu Gln Pro Glu Asp Phe Gly Ser Tyr Tyr  
 225 230 235 240

Cys Gln His Phe Trp Ser Thr Pro Arg Thr Phe Gly Gly Gly Thr Lys  
 245 250 255

Leu Glu Ile Lys Arg Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn  
 260 265 270

<210> 184  
 <211> 889  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> nucleotide sequence encoding scFv of genetically engineered anti-  
 hen egg-white lysozyme (HEL) monoclonal antibody D1.3 and surroun  
 ding sequence

<400> 184  
 gcatgcaaat tctatttcaa ggagacagtc ataatgaaat acctattgcc tacggcagcc 60  
 gctggattgt tattactcgc tgcccaacca gcgatggccc aggtgcagct gcaggagtca 120  
 ggacctggcc tgggtggcgcc ctacacagagc ctgtccatca catgcaccgt ctcagggttc 180  
 tcattaaccg gctatggtgt aaactgggtt cgccagcctc caggaaaggg tctggagtgg 240  
 ctgggaatga tttgggggtga tggaaacaca gactataatt cagctctcaa atccagactg 300  
 agcatcagca aggacaactc caagagccaa gttttcttaa aaatgaacag tctgcacact 360  
 gatgacacag ccagggtacta ctgtgccaga gagagagatt ataggcttga ctactggggc 420  
 caaggcacca cggtcaccgt ctctcaggt ggaggcggtt caggcggagg tggctctggc 480  
 ggtggcggat cggacatcga gtcactcag tctccagcct ccctttctgc gtctgtggga 540  
 gaaactgtca ccatcacatg tcgagcaagt gggaatatc acaattattt agcatggtat 600  
 cagcagaaac agggaaaatc tcctcagctc ctggtctatt atacaacaac cttagcagat 660  
 ggtgtgccat caagggtcag tggcagtga tcaggaacac aatattctct caagatcaac 720  
 agcctgcaac ctgaagattt tgggagttat tactgtcaac atttttggag tactcctcgg 780

acgttcggtg gagggaccaa gctcgagatc aaacgggaac aaaaactcat ctcagaagag 840  
gatctgaatt aataatgata aaacggtaat aaggatccag ctcgaattc 889

<210> 185  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> amino acids encoded by the nucleotide sequence around the cloning site in gene III of fd-CAT2

<400> 185

His Ser Ala Gln Val Gln Leu Gln Glu Leu Glu Ile Lys Arg Ala Ala  
1 5 10 15

Ala Glu Thr Val  
20

<210> 186  
<211> 60  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> nucleotide sequence around the cloning site in gene III of fd-CAT  
2

<400> 186  
cacagtgcac aggtccaact gcaggagctc gagatcaaac gggcggccgc agaaactgtt 60

<210> 187  
<211> 241  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VH of Fab D1.3 from genetically engineered anti-hen egg-white lys  
ozyme (HEL) monoclonal antibody

<400> 187

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Ala  
1 5 10 15

Ala Gln Pro Ala Met Ala Gln Val Gln Leu Gln Glu Ser Gly Pro Gly  
20 25 30



Leu Val Ala Pro Ser Gln Ser Leu Ser Ile Thr Cys Thr Val Ser Gly  
35 40 45

Phe Ser Leu Thr Gly Tyr Gly Val Asn Trp Val Arg Gln Pro Pro Gly  
50 55 60

Lys Gly Leu Glu Trp Leu Gly Met Ile Trp Gly Asp Gly Asn Thr Asp  
65 70 75 80

Tyr Asn Ser Ala Leu Lys Ser Arg Leu Ser Ile Ser Lys Asp Asn Ser  
85 90 95

Lys Ser Gln Val Phe Leu Lys Met Asn Ser Leu His Thr Asp Asp Thr  
100 105 110

Ala Arg Tyr Tyr Cys Ala Arg Glu Arg Asp Tyr Arg Leu Asp Tyr Trp  
115 120 125

Gly Gln Gly Thr Thr Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro  
130 135 140

Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr  
145 150 155 160

Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr  
165 170 175

Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro  
180 185 190

Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr  
195 200 205

Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn  
210 215 220

His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser  
225 230 235 240

Ser

<210> 188

<211> 236  
<212> PRT  
<213> Artificial Sequence

<220>

<223> VL of Fab D1.3 from genetically engineered anti-hen egg-white lys  
ozyme (HEL) monoclonal antibody

<400> 188

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Leu Ala  
1 5 10 15

Ala Gln Pro Ala Met Ala Asp Ile Glu Leu Thr Gln Ser Pro Ala Ser  
20 25 30

Leu Ser Ala Ser Val Gly Glu Thr Val Thr Ile Thr Cys Arg Ala Ser  
35 40 45

Gly Asn Ile His Asn Tyr Leu Ala Trp Tyr Gln Gln Lys Gln Gly Lys  
50 55 60

Ser Pro Gln Leu Leu Val Tyr Tyr Thr Thr Thr Leu Ala Asp Gly Val  
65 70 75 80

Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Gln Tyr Ser Leu Lys  
85 90 95

Ile Asn Ser Leu Gln Pro Glu Asp Phe Gly Ser Tyr Tyr Cys Gln His  
100 105 110

Phe Trp Ser Thr Pro Arg Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile  
115 120 125

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp  
130 135 140

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn  
145 150 155 160

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu  
165 170 175

Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp  
180 185 190

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr  
 195 200 205

Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser  
 210 215 220

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Ser  
 225 230 235

<210> 189  
 <211> 1526  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> nucleotide sequence of Fab D1.3 from genetically engineered anti-  
 hen egg-white lysozyme (HEL) monoclonal antibody

<400> 189  
 gcatgcaaat tctatttcaa ggagacagtc ataatgaaat acctattgcc tacggcagcc 60  
 gctggattgt tattactcgc tgcccaacca gcgatggccc aggtgcagct gcaggagtca 120  
 ggacctggcc tgggtggcgcc ctacacagagc ctgtccatca catgcaccgt ctcagggttc 180  
 tcattaaccg gctatggtgt aaactgggtt cgccagcctc caggaaagg tctggagtgg 240  
 ctgggaatga tttgggggtga tggaaacaca gactataatt cagctctcaa atccagactg 300  
 agcatcagca aggacaactc caagagccaa gttttcttaa aaatgaacag tctgcacact 360  
 gatgacacag ccaggtaacta ctgtgccaga gagagagatt ataggcttga ctactggggc 420  
 caaggcacca cggtcaccgt ctctcagcc tccaccaagg gcccatcggc cttccccctg 480  
 gcaccctcct ccaagagcac ctctgggggc acagcggccc tgggctgcct ggtcaaggac 540  
 tacttccccg aaccggtgac ggtgtcgtgg aactcaggcg ccctgaccag cggcgtgcac 600  
 accttccccg ctgtcctaca gtcctcagga ctctactccc tcagcagcgt ggtgaccgtg 660  
 ccctccagca gcttgggcac ccagacctac atctgcaacg tgaatcaciaa gccagcaac 720  
 accaaggtcg acaagaaagt tgagccaaa tcttcataat aaccggggag cttgcatgca 780  
 aattctattt caaggagaca gtcataatga aatacctatt gcctacggca gccgctggat 840  
 tggtattact cgctgcccac ccagcgatgg ccgacatcga gtcacccag tctccagcct 900  
 ccctttctgc gtctgtggga gaaactgtca ccatcacatg tcgagcaagt gggaatattc 960  
 acaattattt agcatggtat cagcagaaac agggaaaatc tcctcagctc ctggtctatt 1020

atacaacaac cttagcagat ggtgtgccat caaggttcag tggcagtga tcaggaacac 1080  
 aatattctct caagatcaac agcctgcagc ctgaagattt tgggagttat tactgtcaac 1140  
 atttttggag tactcctcgg acgttcggtg gaggcaccaa gctcgagatc aaacggactg 1200  
 tggctgcacc atctgtcttc atcttccgc catctgatga gcagttgaaa tctggaactg 1260  
 cctctgttgt gtgcctgctg aataacttct atcccagaga ggccaaagta cagtggaagg 1320  
 tggataacgc cctccaatcg ggtaactccc aggagagtgt cacagagcag gacagcaagg 1380  
 acagcaccta cagcctcagc agcacctga cgctgagcaa agcagactac gagaaacaca 1440  
 aagtctacgc ctgcgaagtc acccatcagg gcctgagctc gcccgtcaca aagagcttca 1500  
 accgcggaga gtcataagtaa gaattc 1526

<210> 190  
 <211> 249  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> scFv form of the anti-oxazalone antibody NQ11

<400> 190

Gln Val Gln Leu Gln Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly  
 1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Thr Ser Gly Phe Thr Phe Ser Asn Tyr  
 20 25 30

Tyr Met Gly Trp Val Arg Gln Pro Pro Gly Lys Ala Leu Glu Trp Leu  
 35 40 45

Gly Ser Val Arg Asn Lys Val Asn Gly Tyr Thr Thr Glu Tyr Ser Ala  
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Phe Gln Ser Ile  
 65 70 75 80

Leu Tyr Leu Gln Ile Asn Thr Leu Arg Thr Glu Asp Ser Ala Thr Tyr  
 85 90 95

Tyr Cys Ala Arg Gly Tyr Asp Tyr Gly Ala Trp Phe Ala Tyr Trp Gly  
 100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser Gly Gly Gly Gly Ser Gly Gly  
 115 120 125

Gly Gly Ser Gly Gly Gly Gly Ser Asp Ile Glu Leu Thr Gln Thr Pro  
 130 135 140

Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg  
 145 150 155 160

Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp  
 165 170 175

Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val  
 180 185 190

Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser  
 195 200 205

Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu  
 210 215 220

Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Tyr Thr Phe Gly  
 225 230 235 240

Gly Gly Thr Lys Leu Glu Ile Lys Arg  
 245

<210> 191

<211> 747

<212> DNA

<213> Artificial Sequence

<220>

<223> nucleotide sequence encoding scFv form of the anti-oxazalone anti  
 body NQ11

<400> 191

caggtgcagc tgcaggagtc aggaggaggc ttggtacagc ctggggggttc tctgagactc 60

tcctgtgcaa cttctggggtt caccttcagt aattactaca tgggctgggt ccgccagcct 120

ccaggaaagg cacttgagtg gttgggttct gttagaaaca aagttaatgg ttacacaaca 180

gagtacagtg catctgtgaa ggggcgggttc accatctcca gagataattt ccaaagcatc 240

ctctatcttc aaataaacac cctgagaact gaggacagtg ccacttatta ctgtgcaaga 300

ggctatgatt acggggcctg gtttgcttac tggggccaag ggaccctggt caccgtctcc 360

tcaggtggag gcggttcagg cggaggtggc tctggcggtg gcggatcgga catcgagctc 420  
 acccaaactc cactctccct gcctgtcagt cttggagatc aagcctccat ctcttgaga 480  
 tctagtcaga gcattgtaca tagtaatgga aacacctatt tagaatggta cctgcagaaa 540  
 ccaggccagt ctccaaagct cctgatctac aaagtttcca accgattttc tgggggtccca 600  
 gacaggttca gtggcagtgg atcggggaca gatttcacac tcaagatcag cagagtggag 660  
 gctgaggatc tgggagttaa ttactgcttt caaggttcac atgttccgta cacgttcgga 720  
 ggggggacca agctcgagat caaacgg 747

<210> 192

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> amino terminus of phoAla 166

<400> 192

Arg Thr Pro Glu Met Pro Val Leu

1

5

<210> 193

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> 5' insertion site of phoAla 166 in frame to geneIII

<400> 193

tctcacagtg cacaaactgt tgaacggaca ccagaaatgc ctgttctg

48

<210> 194

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> carboxy terminus of phoAla 166

<400> 194

Lys Ala Ala Leu Gly Leu Lys

1

5

<210> 195

<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> 3' insertion site of phoAla 166 in frame to geneIII

<400> 195  
aaagccgctc tggggctgaa agcggccgca gaaactgttg aaagt

45

<210> 196  
<211> 6  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> amino terminus of scFv PCR product

<400> 196

Gln Val Gln Leu Gln Glu  
1 5

<210> 197  
<211> 6  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> carboxy terminus of scFv PCR product

<400> 197

Lys Leu Glu Ile Lys Arg  
1 5

<210> 198  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> 5' end of scFv PCR product

<400> 198  
tttaatgagg atccacaggt gcagctgcaa gag

33

<210> 199  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>

<223> 3' end of scFv PCR product

<400> 199

aagcttgaga tcaaacggga tccattc

27

<210> 200

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> site in geneIII for introduction of BamHI site via olgio G3 Bamlink

<400> 200

gaggggtggtg gctct

15

<210> 201

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> site in geneIII for introduction of BamHI site via olgio G3 Bamlink

<400> 201

gaggggtggcg gctct

15

<210> 202

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> site in geneIII for introduction of BamHI site via olgio G3 Bamlink

<400> 202

gaggggtggcg gctct

15

<210> 203

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> site in geneIII for introduction of BamHI site via olgio G3 Bamlink

<400> 203

gaggggtggcg gcact

15

<210> 204

<211> 15

<212> DNA



<213> Artificial Sequence

<220>

<223> site in geneIII for introduction of BamHI site via oligo G3 Bamlink

<400> 204

gagggcggcg gctct

15

<210> 205

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> site in geneIII for introduction of BamHI site via oligo G3 Bamlink

<400> 205

gaggggtggtg gttct

15

<210> 206

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> site in geneIII for introduction of BamHI site via oligo G3 Bamlink

<400> 206

gagggcggcg gctct

15

<210> 207

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> site in geneIII for introduction of BamHI site via oligo G3 Bamlink

<400> 207

gagggcggcg gctct

15

<210> 208

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> site in geneIII for introduction of BamHI site via oligo G3 Bamlink

<400> 208

gagggcggcg gttct

15

{  
 <210> 209  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> site in geneIII for introduction of BamHI site via olgio G3 Bamlink  
  
 <400> 209  
 gagggcggcg gctct 15  
  
 <210> 210  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> site in geneIII for introduction of BamHI site via olgio G3 Bamlink  
  
 <400> 210  
 gagggcggcg gttct 15  
  
 <210> 211  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> site in geneIII for introduction of BamHI site via olgio G3 Bamlink  
  
 <400> 211  
 gagggcggcg gctct 15  
  
 <210> 212  
 <211> 15  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> site in geneIII for introduction of BamHI site via olgio G3 Bamlink  
  
 <400> 212  
 gaggtggcg gatcc 15  
  
 <210> 213  
 <211> 11  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> site in geneIII for introduction of BamHI site via olgio G3 Bamlink  
  
 <400> 213

gaggggtggcg g

11

<210> 214  
<211> 114  
<212> PRT  
<213> Artificial Sequence

<220>

<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 214

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Thr Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Ser Gly Tyr Thr Asn Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Asn Arg Tyr Gly Ala Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 215  
<211> 114  
<212> PRT  
<213> Artificial Sequence

<220>

<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 215

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Asp  
20 25 30

Trp Met His Trp Leu Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asn Tyr Gly Leu Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 216

<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 216

Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Val Met His Trp Val Lys Gln Lys Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser Thr Ala Tyr

65

70

75

80

Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
                     85                    90                    95

Ala Ile Tyr Arg Ser Phe Pro Tyr Trp Gly Gln Gly Thr Thr Val Thr  
                     100                    105                    110

Val Ser Ser  
             115

&lt;210&gt; 217

&lt;211&gt; 116

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

&lt;400&gt; 217

Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala  
   1                    5                    10                    15

Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ser Phe Thr Gly Tyr  
                     20                    25                    30

Phe Met Asn Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile  
                     35                    40                    45

Gly Arg Ile Asn Pro Tyr Asn Gly Asp Thr Phe Tyr Asn Gln Lys Phe  
                     50                    55                    60

Lys Asp Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Ser Thr Ala His  
   65                    70                    75                    80

Met Glu Leu Leu Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
                     85                    90                    95

Val Gly Ile Thr Thr Arg Phe Ala Tyr Trp Gly Gln Gly Thr Thr Val  
                     100                    105                    110

Thr Val Ser Ser  
             115

<210> 218  
<211> 113  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone  
<400> 218

Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Ala Pro Ser Gln  
1 5 10 15

Ser Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Ser Tyr  
20 25 30

Gly Val His Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu  
35 40 45

Gly Val Ile Trp Ala Gly Gly Ser Thr Asn Tyr Asn Ser Ala Leu Met  
50 55 60

Ser Arg Leu Ser Ile Ser Lys Asp Asn Ser Lys Ser Gln Val Phe Leu  
65 70 75 80

Lys Met Asn Ser Leu Gln Thr Asp Asp Thr Ala Met Tyr Tyr Cys Ala  
85 90 95

Arg Asp Arg Gly Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser  
100 105 110

Ser

<210> 219  
<211> 114  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone  
<400> 219

Gln Val Lys Leu Gln Gln Ser Gly Pro Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr

20

25

30

Leu Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Lys Trp Ile  
 35 40 45

Gly Tyr Ile Asn Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
 50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
 65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
 85 90 95

Ala Arg Asp Tyr Gly Tyr Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
 100 105 110

Ser Ser

<210> 220

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 220

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Arg Pro Gly Ala  
 1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr  
 20 25 30

Leu Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
 35 40 45

Gly Tyr Ile Asn Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
 50 55 60

Lys Asp Glu Ala Thr Leu Thr Ala Asp Lys Ser Ser Asn Thr Ala Tyr  
 65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Tyr Gly Tyr Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 221  
<211> 114  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 221

Gln Val Gln Leu Gln Gln Ser Gly Pro Glu Leu His Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ser Phe Ser Arg Asn  
20 25 30

Tyr Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Ala Pro Phe Asn Gly Gly Thr Thr Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Val Asp Arg Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met His Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Thr Asp Tyr Gly Arg Asp Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 222  
<211> 114  
<212> PRT



<213> Artificial Sequence

<220>

<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 222

Gln Val Lys Leu Gln Gln Ser Gly Pro Glu Leu Ala Arg Pro Gly Val  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Ala Met His Trp Val Lys Gln Ser Gln Ser Lys Ser Leu Glu Trp Ile  
35 40 45

Gly Val Ile Ser Thr Tyr Asn Gly Asn Thr Asn Tyr Asn Gln Lys Phe  
50 55 60

Lys Gly Lys Ala Thr Met Thr Val Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Glu Leu Ala Arg Leu Thr Ser Glu Asp Ser Ala Ile Tyr Tyr Cys  
85 90 95

Ala Arg Asp Tyr Gly Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 223

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 223

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr  
20 25 30

Thr Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Ser Gly Tyr Thr Asn Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Arg Gly Ala Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 224

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 224

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Asp  
20 25 30

Trp Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asn Tyr Gly Leu Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 225

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 225

Gln Val Gln Leu Gln Gln Ser Gly Leu Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn Tyr  
20 25 30

Leu Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Tyr Gly Tyr Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 226

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 226

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn Tyr  
20 25 30

Trp Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Asp Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Tyr Gly Tyr Phe Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 227

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 227

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Leu Ser Cys Lys Thr Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Thr Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Ser Gly Tyr Thr Asn Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Tyr Gly Tyr Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 228  
<211> 114  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone  
<400> 228

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Glu Ala Ser Gly Tyr Thr Phe Thr Ser His  
20 25 30

Leu Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Arg Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Tyr Gly Ala Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 229  
<211> 114  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone  
<400> 229

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Trp Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Tyr Gly Tyr Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 230  
<211> 114  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone  
<400> 230

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Thr Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Leu Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Tyr Gly Tyr Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 231  
<211> 114  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone  
<400> 231

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Val Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Ser Gly Tyr Thr Asn Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asn Tyr Gly Ile Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 232  
<211> 114  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone  
<400> 232

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Thr Phe  
20 25 30

Leu Met His Trp Leu Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Tyr Gly Tyr Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser



<210> 233  
<211> 114  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone  
  
<400> 233

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Thr Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Gly Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Ser Gly Tyr Thr Asn Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Tyr Gly Tyr Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 234  
<211> 114  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone  
  
<400> 234

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr  
20 25 30

Thr Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Thr Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr  
65 70 75 80

Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys  
85 90 95

Ala Arg Asp Tyr Gly Tyr Tyr Trp Gly Gln Gly Thr Thr Val Thr Val  
100 105 110

Ser Ser

<210> 235

<211> 114

<212> PRT

<213> Artificial Sequence

<220>

<223> VH of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 235

Gln Val Lys Leu Gln Gln Ser Gly Ala Glu Leu Ala Lys Pro Gly Ala  
1 5 10 15

Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Asp  
20 25 30

Trp Met His Trp Leu Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile  
35 40 45

Gly Tyr Ile Asn Pro Ser Thr Gly Tyr Thr Glu Tyr Asn Gln Lys Phe  
50 55 60

Lys Asp Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr



<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 237

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Met Thr Cys Arg Ala Ser Ser Ser Val Ser Ser Ser  
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Ala Ser Pro Lys Val Trp  
35 40 45

Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Val Glu  
65 70 75 80

Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Gly Tyr Pro  
85 90 95

Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

<210> 238

<211> 110

<212> PRT

<213> Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 238

Asp Ile Glu Leu Thr Gln Ser Pro Thr Thr Met Ala Ala Ser Pro Gly  
1 5 10 15

Glu Lys Ile Thr Ile Thr Cys Ser Ala Ser Ser Ser Ile Ser Ser Asn  
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Phe Ser Pro Lys Leu Leu  
35 40 45

Ile Tyr Arg Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser

50

55

60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Gly Thr Met Glu  
65 70 75 80

Ala Glu Asp Val Ala Thr Tyr Tyr Cys Gln Gln Gly Ser Thr Ile Pro  
85 90 95

Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

&lt;210&gt; 239

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

&lt;400&gt; 239

Asp Ile Glu Leu Thr Gln Ser Pro Thr Thr Met Ala Ala Ser Pro Gly  
1 5 10 15

Glu Lys Ile Thr Ile Thr Cys Ser Ala Ser Ser Ser Ile Ser Ser Asn  
20 25 30

Tyr Leu His Trp Phe Gln Gln Lys Pro Gly Phe Ser Pro Lys Leu Leu  
35 40 45

Ile Ser Arg Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Gly Thr Met Glu  
65 70 75 80

Ala Glu Asp Val Ala Thr Tyr Tyr Cys Gln Gln Gly Ser Thr Ile Pro  
85 90 95

Phe Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

&lt;210&gt; 240

&lt;211&gt; 108

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 240

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Asn Tyr Met  
20 25 30

His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys Leu Trp Ile Tyr  
35 40 45

Arg Thr Ser Asn Leu Ala Ser Gly Val Pro Thr Arg Phe Ser Gly Ser  
50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu  
65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Pro Thr  
85 90 95

Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105

<210> 241

<211> 108

<212> PRT

<213> Artificial Sequence.

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 241

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Phe Pro Gly  
1 5 10 15

Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met  
20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile Tyr  
35 40 45

Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser

50

55

60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu Ala Glu  
65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Phe Ser Ser Asn Pro Leu Thr  
85 90 95

Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys Arg Ala  
100 105

&lt;210&gt; 242

&lt;211&gt; 108

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

&lt;400&gt; 242

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Ile Asn Tyr Met  
20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Ala Ser Pro Lys Arg Trp Ile Tyr  
35 40 45

Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser  
50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu Ala Glu  
65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys His Gln Arg Ser Ser Tyr Pro Trp Thr  
85 90 95

Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105

&lt;210&gt; 243

&lt;211&gt; 108

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 243

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met  
20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile Tyr  
35 40 45

Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser  
50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu Ala Glu  
65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Leu Thr  
85 90 95

Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105

<210> 244

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 244

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Ile  
20 25 30

His Trp Pro Gln Gln Lys Pro Gly Thr Ser Pro Lys Leu Trp Ile Tyr  
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser



50

55

60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu  
65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Tyr His Ser Tyr Pro Leu Thr  
85 90 95

Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105

&lt;210&gt; 245

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

&lt;400&gt; 245

Asp Ile Glu Leu Thr Gln Ser Pro Thr Thr Met Ala Ala Ser Pro Gly  
1 5 10 15

Glu Lys Ile Thr Ile Thr Cys Ser Ala Ser Ser Ser Ile Ser Ser Asn  
20 25 30

Tyr Leu His Trp Phe Gln Gln Lys Pro Gly Phe Ser Pro Lys Leu Leu  
35 40 45

Ile Tyr Arg Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Gly Thr Met Glu  
65 70 75 80

Ala Glu Asp Val Ala Thr Tyr Tyr Cys Gln Gln Gly Ser Ser Ile Pro  
85 90 95

Leu Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

&lt;210&gt; 246

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 246

Asp Ile Glu Leu Thr Gln Ser Pro Thr Thr Met Ala Ala Ser Pro Gly  
1 5 10 15

Glu Met Ile Thr Ile Thr Cys Ser Ala Ser Ser Ser Ile Ser Ser Asn  
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Phe Ser Pro Lys Leu Leu  
35 40 45

Ile Tyr Arg Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Gly Ala Met Glu  
65 70 75 80

Ala Glu Asp Val Ala Thr Tyr Tyr Cys Gln Gln Gly Ser Ser Ile Pro  
85 90 95

Tyr Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

<210> 247

<211> 110

<212> PRT

<213> Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 247

Asp Ile Glu Leu Thr Gln Ser Pro Thr Thr Met Ala Ala Ser Pro Gly  
1 5 10 15

Glu Lys Ile Thr Ile Thr Cys Ser Ala Ser Ser Ser Ile Ser Ser Asn  
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Phe Ser Pro Lys Leu Leu  
35 40 45

Ile Tyr Arg Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser

50

55

60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Gly Thr Met Glu  
65 70 75 80

Ala Glu Asp Val Ala Thr Tyr Tyr Cys Gln Gln Gly Ser Ser Ile Pro  
85 90 95

Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

&lt;210&gt; 248

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

&lt;400&gt; 248

Asp Ile Glu Leu Thr Gln Ser Pro Thr Thr Met Ala Ala Ser Pro Gly  
1 5 10 15

Glu Lys Ile Thr Ile Thr Cys Ser Ala Ser Ser Ser Ile Ser Ser Asn  
20 25 30

His Leu His Trp Tyr Gln Gln Lys Pro Gly Phe Ser Pro Lys Leu Leu  
35 40 45

Ile Tyr Arg Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Gly Thr Met Glu  
65 70 75 80

Ala Glu Asp Val Ala Thr Tyr Tyr Cys Gln Gln Gly Ser Gly Ile Pro  
85 90 95

Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

&lt;210&gt; 249

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 249

Asp Ile Glu Leu Thr Gln Ser Pro Thr Thr Met Ala Ala Ser Pro Gly  
1 5 10 15

Glu Lys Ile Thr Ile Thr Cys Ser Ala Ser Ser Ser Ile Ser Ser Asn  
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Phe Ser Pro Lys Leu Leu  
35 40 45

Ile Tyr Arg Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Gly Thr Met Glu  
65 70 75 80

Ala Glu Asp Val Ala Thr Tyr Tyr Cys Gln Gln Gly Ser Ser Ile Pro  
85 90 95

Phe Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

<210> 250

<211> 110

<212> PRT

<213> Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 250

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Ile Thr Ile Thr Cys Ser Ala Ser Ser Ser Ile Ser Ser Asn  
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Phe Ser Pro Lys Leu Leu  
35 40 45

Ile Tyr Arg Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser

50

55

60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Gly Thr Met Glu  
65 70 75 80

Ala Glu Asp Val Ala Thr Tyr Tyr Cys Gln Gln Gly Ser Ser Ile Pro  
85 90 95

Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

&lt;210&gt; 251

&lt;211&gt; 108

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

&lt;400&gt; 251

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met  
20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile Tyr  
35 40 45

Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser  
50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu Ala Glu  
65 70 75 80

Asp Val Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Asn Pro Leu Thr  
85 90 95

Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105

&lt;210&gt; 252

&lt;211&gt; 108

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 252

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Leu Thr Cys Ser Ala Ser Ser Ser Val Arg Tyr Val  
20 25 30

Asn Trp Phe Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile Tyr  
35 40 45

Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser  
50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu Ala Glu  
65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Thr Ser Asn Pro Pro Thr  
85 90 95

Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105

<210> 253

<211> 108

<212> PRT

<213> Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 253

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met  
20 25 30

His Trp Tyr Gln Gln Lys Ser Gly Thr Ser Pro Lys Arg Trp Ile Tyr  
35 40 45

Asp Thr Ser Lys Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser

50

55

60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu Ala Glu  
65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Thr Asn Ala Leu Thr  
85 90 95

Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105

&lt;210&gt; 254

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

&lt;400&gt; 254

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Thr Ser Asn  
20 25 30

Tyr Leu Asn Trp Tyr Gln Gln Lys Ser Gly Ala Ser Pro Lys Leu Trp  
35 40 45

Val Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Val Glu  
65 70 75 80

Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Gly Tyr Pro  
85 90 95

Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

&lt;210&gt; 255

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 255

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Ser Asn  
20 25 30

Tyr Leu Asn Trp Tyr Gln Gln Lys Ser Gly Ala Ser Pro Lys Leu Trp  
35 40 45

Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu  
65 70 75 80

Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro  
85 90 95

Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

<210> 256

<211> 110

<212> PRT

<213> Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 256

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Ser Asn  
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Ser Gly Ala Ser Pro Lys Leu Trp  
35 40 45

Ile Tyr Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser



50

55

60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Val Glu  
65 70 75 80

Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Gly Tyr Pro  
85 90 95

Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

&lt;210&gt; 257

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

&lt;400&gt; 257

Asp Ile Glu Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Ser Asn  
20 25 30

Tyr Leu His Trp Phe Gln Gln Lys Ser Gly Ala Ser Pro Lys Leu Trp  
35 40 45

Ile Tyr Ser Thr Ser Asn Leu Pro Ser Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Val Glu  
65 70 75 80

Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Tyr Ser Gly Tyr Pro  
85 90 95

Leu Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

&lt;210&gt; 258

&lt;211&gt; 110

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

<220>

<223> VL of scFv from mouse immunized with 2-phenyl-5-oxazolone

<400> 258

Asp Ile Glu Leu Thr Gln Ser Pro Thr Thr Met Ala Ala Ser Pro Gly  
1 5 10 15

Glu Lys Ile Thr Ile Thr Cys Ser Ala Ser Ser Ser Ile Ser Ser Asn  
20 25 30

Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Phe Ser Pro Lys Leu Leu  
35 40 45

Ile Tyr Arg Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser  
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Gly Thr Met Glu  
65 70 75 80

Ala Glu Asp Val Ala Thr Tyr Tyr Cys Gln Gln Gly Ser Ser Ile Pro  
85 90 95

Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg Ala  
100 105 110

<210> 259

<211> 41

<212> PRT

<213> Artificial Sequence

<220>

<223> residues encoded by insertion site and surrounding sequence in pH  
EN1

<400> 259

Leu Leu Ala Ala Gln Pro Ala Met Ala Gln Val Gln Leu Gln Val Asp  
1 5 10 15

Leu Glu Ile Lys Arg Ala Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu  
20 25 30

Asp Leu Asn Gly Ala Ala Thr Val Glu  
35 40

<210> 260  
<211> 126  
<212> DNA  
<213> Artificial Sequence

<220>

<223> insertion site and surrounding sequence in pHEN1

<400> 260  
ttactcgcgg cccagccggc catggcccag gtgcagctgc aggtcgacct cgagatcaaa : 60  
cgggcggccg cagaacaaaa actcatctca gaagaggatc tgaatggggc cgcatagact 120  
gttgaa 126

<210> 261  
<211> 734  
<212> PRT  
<213> Artificial Sequence

<220>

<223> scFvB18

<400> 261

Pro His Glu Thr Tyr Arg Ser Glu Arg His Ile Ser Ser Glu Arg Ala  
1 5 10 15

Leu Ala Gly Leu Asn Val Ala Leu Gly Leu Asn Leu Glu Gly Leu Asn  
20 25 30

Gly Leu Asn Ser Glu Arg Gly Leu Tyr Ala Leu Ala Gly Leu Leu Glu  
35 40 45

Val Ala Leu Leu Tyr Ser Pro Arg Gly Leu Tyr Ala Leu Ala Ser Glu  
50 55 60

Arg Val Ala Leu Leu Tyr Ser Leu Glu Ser Glu Arg Cys Tyr Ser Leu  
65 70 75 80

Tyr Ser Ala Leu Ala Ser Glu Arg Gly Leu Tyr Thr Tyr Arg Thr His  
85 90 95

Arg Pro His Glu Thr His Arg Ser Glu Arg Thr Tyr Arg Thr Arg Pro  
100 105 110

Met Glu Thr His Ile Ser Thr Arg Pro Val Ala Leu Leu Tyr Ser Gly  
115 120 125

Leu Asn Ala Arg Gly Pro Arg Gly Leu Tyr Ala Arg Gly Gly Leu Tyr  
130 135 140

Leu Glu Gly Leu Thr Arg Pro Ile Leu Glu Gly Leu Tyr Ala Arg Gly  
145 150 155 160

Ile Leu Glu Ala Ser Pro Pro Arg Ala Ser Asn Ser Glu Arg Gly Leu  
165 170 175

Tyr Gly Leu Tyr Thr His Arg Leu Tyr Ser Thr Tyr Arg Ala Ser Asn  
180 185 190

Gly Leu Leu Tyr Ser Pro His Glu Leu Tyr Ser Ser Glu Arg Leu Tyr  
195 200 205

Ser Ala Leu Ala Thr His Arg Leu Glu Thr His Arg Val Ala Leu Ala  
210 215 220

Ser Pro Leu Tyr Ser Pro Arg Ser Glu Arg Ser Glu Arg Thr His Arg  
225 230 235 240

Ala Leu Ala Thr Tyr Arg Met Glu Thr Gly Leu Asn Leu Glu Ser Glu  
245 250 255

Arg Ser Glu Arg Leu Glu Thr His Arg Ser Glu Arg Gly Leu Ala Ser  
260 265 270

Pro Ser Glu Arg Ala Leu Ala Val Ala Leu Thr Tyr Arg Thr Tyr Arg  
275 280 285

Cys Tyr Ser Ala Leu Ala Ala Arg Gly Thr Tyr Arg Ala Ser Pro Thr  
290 295 300

Tyr Arg Gly Leu Tyr Ser Glu Arg Ser Glu Arg Thr Tyr Arg Thr Tyr  
305 310 315 320

Arg Pro His Glu Ala Ser Pro Thr Tyr Arg Thr Arg Pro Gly Leu Tyr  
325 330 335

Gly Leu Asn Gly Leu Tyr Thr His Arg Thr His Arg Val Ala Leu Thr  
340 345 350

His Arg Val Ala Leu Ser Glu Arg Ser Glu Arg Gly Leu Tyr Gly Leu  
355 360 365

Tyr Gly Leu Tyr Gly Leu Tyr Ser Glu Arg Gly Leu Tyr Gly Leu Tyr  
370 375 380

Gly Leu Tyr Gly Leu Tyr Ser Glu Arg Gly Leu Tyr Gly Leu Tyr Gly  
385 390 395 400

Leu Tyr Gly Leu Tyr Ser Glu Arg Gly Leu Asn Ala Leu Ala Val Ala  
405 410 415

Leu Gly Leu Tyr Thr His Arg Gly Leu Asn Gly Leu Ser Glu Arg Ala  
420 425 430

Leu Ala Leu Glu Thr His Arg Thr His Arg Ser Glu Arg Pro Arg Gly  
435 440 445

Leu Tyr Gly Leu Thr His Arg Val Ala Leu Thr His Arg Leu Glu Thr  
450 455 460

His Arg Cys Tyr Ser Ala Arg Gly Ser Glu Arg Ser Glu Arg Thr His  
465 470 475 480

Arg Gly Leu Tyr Ala Leu Ala Val Ala Leu Thr His Arg Thr His Arg  
485 490 495

Ser Glu Arg Ala Ser Asn Thr Tyr Arg Ala Leu Ala Ala Ser Asn Thr  
500 505 510

Arg Pro Val Ala Leu Gly Leu Asn Gly Leu Leu Tyr Ser Pro Arg Ala  
515 520 525

Ser Pro His Ile Ser Leu Glu Pro His Glu Thr His Arg Gly Leu Tyr  
530 535 540

Leu Glu Ile Leu Glu Gly Leu Tyr Gly Leu Tyr Thr His Arg Ala Ser  
545 550 555 560

Asn Ala Ser Asn Ala Arg Gly Ala Leu Ala Pro Arg Gly Leu Tyr Val  
565 570 575

Ala Leu Pro Arg Ala Leu Ala Ala Arg Gly Pro His Glu Ser Glu Arg

580

585

590

Gly Leu Tyr Ser Glu Arg Leu Glu Ile Leu Glu Gly Leu Tyr Ala Ser  
595 600 605

Pro Leu Tyr Ser Ala Leu Ala Ala Leu Ala Leu Glu Thr His Arg Ile  
610 615 620

Leu Glu Thr His Arg Gly Leu Tyr Ala Leu Ala Gly Leu Asn Thr His  
625 630 635 640

Arg Gly Leu Ala Ser Pro Gly Leu Ala Leu Ala Ile Leu Glu Thr Tyr  
645 650 655

Arg Pro His Glu Cys Tyr Ser Ala Leu Ala Leu Glu Thr Arg Pro Thr  
660 665 670

Tyr Arg Ser Glu Arg Ala Ser Asn His Ile Ser Thr Arg Pro Val Ala  
675 680 685

Leu Pro His Glu Gly Leu Tyr Gly Leu Tyr Gly Leu Tyr Thr His Arg  
690 695 700

Leu Tyr Ser Leu Glu Thr His Arg Val Ala Leu Leu Glu Gly Leu Ile  
705 710 715 720

Leu Glu Leu Tyr Ser Ala Arg Gly Ala Leu Ala Ala Leu Ala  
725 730

<210> 262

<211> 770

<212> DNA

<213> Artificial Sequence

<220>

<223> scFvB18

<400> 262

ttctattctc acagtgcaca ggtccagctg cagcagctctg gggctgagct tgtgaagcct	60
ggggcttcag tgaagctgtc ctgcaaggct tctggctaca ccttcaccag ctactggatg	120
cactgggtga agcagaggcc tggacgaggc cttgagtgga ttggaaggat tgatccta	180
agtgggtgta ctaagtacaa tgagaagttc aagagcaagg ccacactgac tgtagacaaa	240
ccctccagca cagcctacat gcagctcagc agcctgacat ctgaggactc tgcggtctat	300

tattgtgcaa gatacgacta cggtagtagc tactactttg actactgggg ccaagggacc 360  
acggtcaccg tctcctcagg tggaggcggg tcaggcggag gtggctctgg cggtggcgga 420  
tcccaggctg ttgggacaca ggaatctgca ctcaccacat cacctgggtga aacagtcaca 480  
ctcacttgtc gctcaagtac tggggctgtt acaactagta actatgccaa ctgggtccaa 540  
gaaaaaccag atcatttatt cactgggtcta ataggtggta ccaacaaccg agctccaggt 600  
gttcctgcca gattctcagg ctccctgatt ggagacaagg ctgccctcac catcacaggg 660  
gcacagactg aggatgaggc aatatatttc tgtgtcttat ggtacagcaa ccattgggtg 720  
ttcgggtggag gaaccaaact gactgtcctc gagatcaaac gggcggccgc 770

<210> 263

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> carboxy terminus of Hman CH1 and hinge from pJM1-Fab D1.3

<400> 263

Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Ser  
1 5 10 15

Thr Lys Thr His Thr Ser Gly Gly Glu Gln Lys Leu Ile Ser Glu Glu  
20 25 30

Asp Leu Asn  
35

<210> 264

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> pelB leader and amino terminus of VK from pJM1-Fab D1.3

<400> 264

Met Lys Tyr Leu Leu Pro Thr Ala Ala Ala Gly Leu Leu Leu Pro Ala  
1 5 10 15

Ala Gln Pro Ala Met Ala Asp Ile Glu Phe Thr Gln Ser Pro  
20 25 30

<210> 265  
<211> 241  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> linker region of pJM1-Fab D1.3

<400> 265  
aaccccagca acaccaaggt cgacaagaaa gttgagccca aatcttcaac taagacgcac . 60  
acatcaggag gtgaacagaa gctcatctca gaagaggatc tgaattaata agggagcttg 120  
catgcaaatt ctatttcaag gagacagtca taatgaaata cctattgcct acggcagccg 180  
ctggattgtt attacctgct gcccaaccag cgatggccga catcgagttc acccagtctc 240  
c 241

<210> 266  
<211> 108  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> light chain of D1.3

<400> 266

Asp Ile Gln Met Thr Gln Ser Pro Ala Ser Leu Ser Ala Ser Val Gly  
1 5 10 15

Glu Thr Val Thr Ile Thr Cys Arg Ala Ser Gly Asn Ile His Asn Tyr  
20 25 30

Leu Ala Trp Tyr Gln Gln Lys Gln Gly Lys Ser Pro Gln Leu Leu Val  
35 40 45

Tyr Tyr Thr Thr Thr Leu Ala Asp Gly Val Pro Ser Arg Phe Ser Gly  
50 55 60

Ser Gly Ser Gly Thr Gln Tyr Ser Leu Lys Ile Asn Ser Leu Gln Pro  
65 70 75 80

Glu Asp Phe Gly Ser Tyr Tyr Cys Gln His Phe Trp Ser Thr Pro Arg  
85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg  
100 105



<210> 267  
<211> 108  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> light chain from clone M1F

<400> 267

Asp Ile Glu Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Leu Gly  
1 5 10 15

Glu Arg Val Ser Leu Thr Cys Arg Ala Ser Gln Asp Ile Gly Ser Ser  
20 25 30

Leu Asn Trp Leu Gln Gln Glu Pro Asp Gly Thr Ile Lys Arg Leu Ile  
35 40 45

Tyr Ala Thr Ser Ser Leu Asp Ser Gly Val Pro Lys Arg Phe Ser Gly  
50 55 60

Ser Arg Ser Gly Ser Asp Tyr Ser Leu Thr Ile Ser Ser Leu Glu Ser  
65 70 75 80

Glu Asp Phe Val Asp Tyr Tyr Cys Leu Gln Tyr Ala Ser Ser Pro Trp  
85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu Glu Leu Lys Arg  
100 105

<210> 268  
<211> 109  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> light chain from M21

<400> 268

Asp Ile Glu Leu Thr Gln Ser Pro Ala Leu Met Ala Ala Ser Pro Gly  
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Ser Val Ser Ser Ser Ile Ser Ser Ser  
20 25 30

Asn Leu His Trp Tyr Gln Gln Lys Ser Glu Thr Ser Pro Lys Pro Trp  
35 40 45

Ile Tyr Gly Thr Ser Asn Leu Ala Ser Gly Val Pro Val Arg Phe Ser  
50 55 60

Gly Ser Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Glu  
65 70 75 80

Ala Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Tyr Pro  
85 90 95

Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Ile Lys Arg  
100 105

<210> 269  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> linker between VH-HuH2 and VK-HuK3

<400> 269

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
1 5 10 15

<210> 270  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> linker between VH-HuH1 and VK-HuK4

<400> 270

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
1 5 10 15

<210> 271  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> linker between VH-HuH2 and VK-HuK4

<400> 271

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
1 5 10 15

<210> 272

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> linker between VH-HuH1 and VK-HuK3

<400> 272

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
1 5 10 15